

meaningful report. This type of system is especially valuable for transient travelers in territories such as in a convention hall, amusement park, shopping mall, cruise ship, etc. This system is also useful to track highly transitory inventory.

#### IN THE DISCUSSION OF PRIOR ART

Add the following paragraph to the end of section:

Heller (U.S. Patent Number 6,154,139) discloses a method and system utilizing both the radio frequency (RF) and infrared (IR) within a tracking environment. Heller's invention depends on the physical nature of IR signal to determine the location of tracked subject. Each badge (mobile unit) initiates both RF and IR transmission at a timed interval and can be prompted to do so when a button is pushed. A method is disclosed to switch between different communication modes, thereby conserving energy and extending battery life. Each badge is encoded with a fixed identification data, which is included in transmission.

#### IN THE CLAIMS

1. (Amended) In a locale with a plurality of probes interconnected to a computing device, a plurality of mobile devices, and means to enter messages to and to retrieve information on said mobile devices, a method of position tracking and communication comprising the steps of:
  - (a) placing said probes at key locations in said locale ~~with non-overlapping coverage areas~~;
  - (b) modeling said locale with site-specific information using a network of states and transitions with probabilities;
  - (c) deploying said mobile device~~units~~ for position tracking and communication;
  - (d) encoding each mobile device with an identifier;
  - (e) sending out beacons by said probes periodically;
  - (f) responding by said mobile device~~units~~ upon receiving said beacon from said probes;
  - (g) gathering the whereabouts of said mobile device~~units~~ to feed to said computing device;
  - (h) calculating the most probable location of said mobile device using said whereabouts of said mobile device and said network of states and transitions with probabilities;
  - (i) notifying said mobile device with messages; and
  - (j) updating possible change to said site specific information.
2. (Amended) In a method of position tracking and communication of claim 1, said deploying said mobile device~~units~~ comprising the step of;

- (a) calculating the desired life span of each of said mobile device~~units~~;
  - (b) equipping said mobile device~~units~~ with limited battery power sources corresponding to said desired life span; and
  - (c) attaching said mobile device~~unit~~ to person or object to be tracked.
3. (Amended) In a method of position tracking and communication of claim 1, said encoding each mobile device with an identifier comprising the step of;
  - (a) calculating the necessary number of mobile device~~units~~ in the locale;
  - (b) separating said identifier into two parts, one common part for uniqueness within said locale and one group part for supplementary use;
  - (c) communicating with said probes with the said common part;~~and~~
  - (d) sending said group part of said identifier upon request from said probes;~~and~~
  - (e) reusing said identifier when tag with said identifier has run out of batter.
4. (Amended) In a method of position tracking and communication of claim 1, said calculating the most probable location of said mobile device comprising the step of;
  - (a) retrieving the current location of said mobile device~~unit~~;
  - (b) retrieving the past history of said mobile device~~unit~~; and
  - (c) mapping said current location and said history of said mobile device~~unit~~ with site specific information using said network of states and transitions with probabilities.
5. (Amended) In a method of position tracking and communication of claim 1, said notifying said mobile device with messages comprising the step of;
  - (a) calculating said most likely location of said mobile device~~unit~~;
  - (b) calculating the most appropriate messaging device nearby; and
  - (c) sending said message to said messaging device.
6. (Amended) In a method of position tracking and communication of claim 1, said updating possible change to said site specific information comprising the step of;
  - (a) retrieving current location of said mobile device~~unit~~;
  - (b) calculating for discrepancies with said site specific information;
  - (c) retrieving history data on similar occurrence(s);~~and~~
  - (d) alerting system operator of said discrepancies;~~and~~
  - (e) changing said network of states and transitions with probabilities.